PRE-APPEAL BRIEF REQUEST FOR REVIEW	Docket Number (Optional) **LSI.94US01**

I hereby certify that this correspondence is being electronically transmitted to the USPTO (571-273-8300) under 37 CFR §1.8 on___March 23, 2007_____ Signature_____	Application Number 10/783,785	Filed February 20, 2004
	First Named Inventor Richardson, et al.	
Typed or printed name_Jasmine D. Lammons_____	Art Unit 2182	Examiner Aurangzeb Hassan

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
    Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

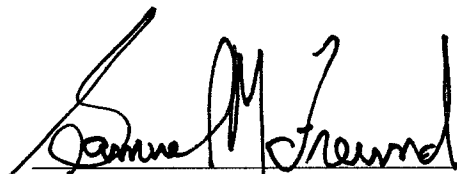☐ assignee of record of the entire interest.
    See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
    (Form PTO/SB/96)

☒ attorney or agent of record.
    Registration number __30,459__

☐ attorney or agent acting under 37 CFR 1.34.

    Registration number if acting under 37 CFR 1.34. _____

_____
Signature

_____Samuel M. Freund_____
Typed or printed name

_____970-492-1100_____
Telephone number

_____March 23 , 2007_____
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Richardson et al.   Docket No.: LSI.94US01 (03-2049)

Application No.: 10/783,785   Examiner: Aurangzeb Hassan

Filed: February 20, 2004   Group Art Unit: 2182

For: ENCLOSURE SLOT IDENTIFICATION BY MODULES

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

In response to the Advisory Action dated January 23, 2007 and the Office Action dated October 23, 2006, in the above-identified patent application, made final, applicant hereby submits a Pre-Appeal Brief Request for Review in accordance with the Pre-Appeal Brief Conference Pilot Program.

Applicant makes the following statement:

In the subject Office Action, the Examiner rejected claims 12–17 under 35 U.S.C. 102(b) as being anticipated by Ninomiya (U.S. Patent No. 5,809,330), since the Examiner stated that as per claim 12 Ninomiya teaches a method for determining the function of a circuit board disposed in a slot in an enclosure comprising the steps of: displaying an identifying characteristic of the slot inside of the enclosure; detecting the displayed characteristic on the circuit board; interpreting the detected characteristic on the circuit board; and directing the circuit board to perform the function associated with the interpreted characteristic of the slot.

The Examiner noted that the determination of the function of a circuit board is not limited to one step of the photo-sensor detecting presence of an inserted option card in that once a card is inserted, the apparatus of Ninomiya has photo-sensors in conjunction with photo-emitters which generates card detection signals DTE1 and DTE2. Upon generation of the DTE signals, the Examiner continued, the process corresponds with address decoders that receive and decode the I/O address supplied to the system and the characteristics can be matched and further can be configured via the I/O address map to determine the characteristic functionality of the option card. The Examiner asserted that the originally cited photo-sensor represents the detection step of an entire process of determining the characteristics and Ninomiya teaches the entire analogous process.

The Examiner continued rejecting dependent claims 13-17 under 35 U.S.C. 102(b) as being anticipated by Ninomiya. Since applicants believe that independent claim 12 is patentable over

Ninomiya, for the reasons to be set forth hereinbelow, no further comment is deemed necessary for claims 13-17 which depend therefrom.

Claims 1-10 were rejected under 35 U.S. C. 103(a) as being unpatentable over Ninomiya in view of Lee (U.S. Patent No. 5,748,912), since the Examiner asserted that as per claim 1, Ninomiya teaches an apparatus for determining the function of a circuit board disposed in a slot in an enclosure and in electrical communication with said enclosure which comprises in combination: (a) means located within said enclosure for displaying an identifying characteristic of the slot; (b) means disposed on said circuit board for detecting the characteristic; and (c) a processor for interpreting the detected characteristic and for directing said circuit board to perform the function associated therewith. The Examiner continued that Ninomiya does not disclose a processor disposed on said circuit board, but that Lee analogously teaches an option card with a processor disposed on said circuit board. The Examiner concluded that it would have been obvious to one of ordinary skill in the art at the time of applicants' invention to insert the option card of Lee into the option card slot of Ninomiya, and that one of ordinary skill in the art would be motivated to make such modifications in order to allow for an efficient and flexible means for users to replace a processor in a unit without exorbitant costs.

The Examiner then rejected dependent claims 2-9 over Ninomiya modified by the teachings of Lee as applied to claim 1, and claims 11 and 18 under 35 U.S.C. 103(a) as being unpatentable over Ninomiya in view of Lee, and further in view of Pope et al. (U.S. Patent No. 4,781,066). Since applicants believe that independent claims 1 and 12 are patentable over Ninomiya under 35 U.S.C. 102(a), and over Ninomiya in view of Lee under 35 U.S.C. 103(a), for the reasons to be set forth hereinbelow, applicants believe that no further response is required for dependent claims 2-9, 11, and 18.

Turning now to the rejection of claims 12–17 under 35 U.S.C. 102(b) as being anticipated by Ninomiya (U.S. Patent No. 5,809,330), applicants wish to point out that the invention of Ninomiya is described in Col. 2, lines 5-20 as follows: "It is therefore an object of the present invention to secure operation of the entire system, including option cards, regardless of the values set for the I/O address areas of said option cards. This invention was designed with this point in mind, and is intended to provide a computer system in which even if the user sets the option card's I/O address area to a value overlapping with the I/O address of an internal I/O device in the portable computer, the proper operation of the entire system, including the option card, may be secured, and in which normal operation of the computer system is possible regardless of the set value of the I/O address area for the option card." (Emphasis added by applicants.).

Further, Col. 7, lines 46-56, if Ninomiya state: "The expansion unit 2 contains a connector 27, expansion slots including expansion connectors 28 and 29, as well as photosensors 30 and 31 to determine the presence of a card. The connector 27 has a configuration and pin placement scheme enabling it to connect to the expansion connector 26. Various types of expansion devices are detachably connected to each of a number of expansion units 28 and 29 belonging to the expansion unit 2. Expansion devices include modem cards, sound cards, graphics adapter cards, SCSI interface cards,

multiple I/O cards and other types of ISA Option cards, as well as PCMCIA-type IC cards." Further, Col. 8, lines 4-19, of Ninomiya state: "The photosensor **30** is a card detection device that detects whether option card **32** is connected to the expansion connector **28**, and is located in the card insertion path of the expansion slot. As shown in the drawing, the photosensor **30** has two protrusions, one side of which is equipped with a photoemitter and the other side of which, facing the first, is equipped with a photoreceptor. When an option card **32** is connected to the expansion connector **28**, the passage of light in the space between these two protrusions, that is, the space between the photoemitter and the photoreceptor, is obstructed by the insertion of the option card **32**. In this event the photosensor **30** generates a card detection signal DTE1 indicating that the option card **32** was inserted in the expansion slot. The card detection signal DTE1 is sent to the system controller **12** via the connectors **27** and **26**, and a flag indicating the insertion of a card is thereupon set in a prescribed status register in the system controller **12**." Column 8, lines 27-41 of Ninomiya states: "Card detection devices employing photosensors (light permeable type or reflective type) as shown in this embodiment are most desirable from the standpoint of accuracy of detection, in terms of such points as reliability, durability and efficiency of space utilization, <u>but card insertion may also be detected by means of a microswitch, for example, or through detection of a change in voltage to certain pins of the expansion connector</u>. The option cards **32** and **33** have address decoders that receive and decode the I/O addresses supplied from the system, determine whether these I/O addresses are the I/O addresses they requested, and <u>said cards operate when it is determined that these I/O addresses are the I/O addresses they requested</u>." (Emphasis added by applicants.).

The present invention, by contrast, relates to the use of identical modules having different functions in slots of an enclosure, such as a storage array enclosure. Among the reasons for using identical modules are cost savings, and a reduction in the error rate associated with introducing an incorrect module into a bin which appears to be identical to other slots. Such modules are referred to as customer replaceable units (CRUs), In order that a particular module operate in accordance with its desired function within a group of modules, the module needs to "know" in which slot it has been placed. Once its location is identified, pre-programmed circuitry in the module can perform properly; that is, in accordance with the instructions from the slot.

Beginning on line 18 and ending on page 5, line 7 of the subject Specification, as originally filed, states: "In accordance with one embodiment of the present invention, each slot in an enclosure that houses multiple CRUs has a set of mechanical tabs arranged in a binary fashion. The binary representation for each slot in an enclosure is chosen such that when a CRU is placed in the slot a sensing apparatus determines the configuration of the tabs and <u>reports the configuration to circuits or processors located on the CRU that determine the function of the CRU from this information. Thus, each CRU can identify its unique slot location within the enclosure.</u> If a chosen CRU is moved to another location, it identifies the new location based on the mechanical binary configuration of the new slot. In this manner, CRUs can be removed for service operations such as repair or upgrading, and replacement

CRUs can be inserted into the same slot with certainty of their function within the overall system. A variety of sensors may be used to determine the presence or absence of a mechanical tab, including micro switches, Hall-effect devices, or LED sensors, or a combination of these or other devices. The number of tabs is determined by the number of slot locations to be uniquely identified." (Emphasis added by applicants.).

Subject claim 1 recites in part: "An apparatus for determining the function of a circuit board disposed in a slot in an enclosure and in electrical communication with said enclosure, which comprises in combination: "... (a) means located within said enclosure for displaying an identifying characteristic of the slot; (b) means disposed on said circuit board for detecting the characteristic; and (c) a processor disposed on said circuit board for interpreting the detected characteristic and for directing said circuit board to perform the function associated therewith." (emphasis added by applicants). Further, claim 12 recites in part: "... displaying an identifying characteristic of the slot inside of the enclosure; detecting the displayed characteristic on the circuit board; interpreting the detected characteristic on the circuit board; and directing the circuit board to perform the function associated with the interpreted characteristic of the slot." (emphasis added by applicants).

Thus, the present claimed invention teaches a system which provides **the identity of the slot** in which a module (CRU) is inserted. The function of that particular slot is then "known" to the module, and the module is directed to perform the function associated with the slot. That is, once the CRU "knows" in which slot it has been placed, preprogrammed circuitry in the module is directed to perform in accordance with the function of the slot as mandated by its identity. A module or circuit board may therefore perform a variety of functions depending on which slot it is inserted. Applicants respectfully believe that the Examiner has misinterpreted the word "determine" in subject claims 1 and 12. In the present patent application, "determine" clearly means **to define or direct or select the function of the module**. This is most strongly stated in the final recitation of both subject claims 1 and 12: "...directing said circuit board to perform the function associated therewith.", or "... directing the circuit board to perform the function associated with the interpreted characteristic of the slot.", respectively.

Contrary to the Examiner's assertion, Ninomiya does not teach an apparatus or method for determining the function of a circuit board dependant on the identity of the slot in which it is disposed, as is recited in both of subject independent claims 1 and 12. **That is, Ninomiya does not teach that the system can define the function of an I/O device.** Rather, in accordance with the teachings of Ninomiya, the function of a particular module or circuit board is the **same, predetermined function**, independent of the slot in which it is inserted.

In the Abstract, Ninomiya states: "Among devices on the system board, all devices other than those devices essential to the operation of the system such as system timer **19** and real-time clock **20**, i.e., I/O devices **24** and **25**, are constructed such that their environment may be configured and changed. If the hardware resources allocated to I/O devices **24** and **25**, such as I/O address areas, interrupt levels, etc., overlap with the hardware resources requested by option cards **32** or **33**, the hardware resources

allocated to I/O devices **24** and **25** are automatically changed. As a result, the internal I/O devices and option boards can always be made to operate normally, regardless of the values set for the I/O address areas, etc. for option cards **32** and **33**." (Emphasis added by applicants.). The invention of Ninomiya does not alter the function or operation of the option cards; rather, the addresses thereof may be changed in order to permit the portable computer of Ninomiya to function properly.

Therefore, applicants respectfully believe that Ninomiya does not anticipate the subject claimed invention. In fact, Ninomiya teaches away from determining or directing or selecting or defining the function of the module as is recited in subject claims 1 and 12. As a result, the Examiner has improperly combined Ninomiya with either Lee and/or Pope et al. in a rejection under 35 U.S.C. 103(a) (See, e.g., Article 2145, Section X. D. of the Manual of Patent Examining Procedure.).

Lee does not teach an option card in FIG. 2B, as suggested by the Examiner; rather, Lee teaches a replaceable, user-removable CPU card. Applicants therefore believe that there would be no teaching, suggestion or motivation to combine Lee with Ninomiya, as asserted by the Examiner (See, e.g., Article 2145, Section X. C. of the Manual of Patent Examining Procedure.). Therefore, applicants believe that the Examiner has failed to set forth a *prima facie* case for obviousness as is required in a rejection under 35 U.S.C. 103(a).

In view of the discussion presented hereinabove, applicants believe that subject claims 1-18, are in condition for allowance, and such action by the Examiner at an early date is earnestly solicited.

Dated this 23rd day of March, 2007.

COCHRAN FREUND & YOUNG LLC

By: _____
Samuel M. Freund, Registration No. 30,459
Attorney for Applicant
2026 Caribou Drive, Suite 201
Fort Collins, CO 80525
Phone: (970) 492-1100
Fax: (970) 492-1101
Customer No. 27479